L Number	Hits	Search Text	DB	Time stamp
•	828	aylward.in. "lehnert, hilmar".in. "parker, robert".in.	USPAT;	2003/12/01 16:42
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	361	"aylward, j".in. "lehnert, hilmar".in. "parker, robert".in.	USPAT;	2003/12/01 16:43
			US-PGPUB;	
	•		EPO; JPO;	,
			DERWENT	
-	317	"aylward, j. richard".in. "lehnert, hilmar".in. "parker,	USPAT;	2003/12/01 16:43
		robert".in.	US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	28	("aylward, j. richard".in. "lehnert, hilmar".in. "parker,	USPAT;	2003/12/01 16:47
		robert".in.) and \$4speak\$3	US-PGPUB;	
		,,,,,,,	EPO; JPO;	
			DERWENT	
_	6	5253298.URPN.	USPAT	2003/12/01 16:46
_	121	381/97.ccls.	USPAT;	2004/06/28 17:15
		301777166.31	US-PGPUB;	2001/00/2017:13
			EPO; JPO;	
		,	DERWENT	
_	4	5642429.URPN.	USPAT	2003/12/02 09:39
_	5		USPAT	2003/12/02 09:50
	J	"5233664").PN.	usiki	2003/12/02 07:30
_	7	5230022.URPN.	USPAT	2003/12/02 09:44
	4		USPAT	2003/12/02 09:44
_	996		USPAT	2003/12/02 09:51
_	119		USPAT	2003/12/02 09:51
_	13		USPAT	2003/12/02 10:50
	1.5	"5140198" "5398080" "5410743" "5559457"	USFAT	2003/12/02 07:32
		"5678220" "5826180" "5901349" "5912975"		
		"5922964").PN.		
_	3		USPAT	2003/12/02 09:57
	62	("RE25652" "3170991" "3219757" "3236949"	USPAT	2003/12/02 09:37
	OZ.	1 ' '	USPAT	2003/12/02 10:13
		['		,
		'		
İ				
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		"5095507" "5095798" "5136651" "5173944"		
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		"5381482" "5384851" "5412732" "5418856"		
	1	"5420929" "5436975" "5438623" "5440639"		
		"5517570" "5524053" "5533129" "5546465"		
		"5579396" "5581618" "5598478" "5659619"		
		"5862227" "5889867").PN.		
-	15	4567607.URPN.	USPAT	2003/12/02 10:29

Γ	•	62	("RE25652" "3170991" "3219757" "3236949"	USPAT	2003/12/02 10:34
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-			"4068093" "4118599" "4139728" "4159397"		
-			"4192969" "4199658" "4208546" "4209665"		
			"4218585" "4309570" "4356349" "4388494"		
			"4394537" "4567607" "4603429" "4625326"		
			"4661851" "4696035" "4700389" "4706287"		
			"4782530" "4893342" "4908858" "4910778"		
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-			"5095507" "5095798" "5136651" "5173944"		
			"5208493" "5301236" "5319713" "5333200"		
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			1 1 1		
-			"5420929" "5436975" "5438623" "5440639"		
			"5517570" "5524053" "5533129" "5546465"		
1	•		"5579396" "5581618" "5598478" "5659619"		
-			"5862227" "5889867").PN.		
	-	2556	(low adj frequenc\$3 bass same frequenc\$3) same shift\$3	USPAT	2003/12/02 10:56
-			with phas\$2		
	-	9	((low adj frequenc\$3 bass same frequenc\$3) same shift\$3	USPAT	2003/12/02 11:05
-			with phas\$2) and (down adj mix\$3 downmix\$3)		
	-	74962	pass adj filter	USPAT	2003/12/02 11:01
İ	_	0	"all pass" adj filter	USPAT	2003/12/02 11:03
	_	584	"all-pass" adj filter	USPAT	2003/12/02 11:03
	_	669	(all-pass allpass) adj filter	USPAT	2003/12/02 11:04
	_	326	(all-pass allpass) adj filter and phase near3 shift\$3	USPAT	2003/12/02 11:04
	-	320	((all-pass allpass) adj filter and phase near3 shift\$3) and	i	
	-	1		USPAT	2003/12/02 11:05
		,	(down adj mix\$3 downmix\$3)	LICDAT	2007/12/02 11 00
	-	6	5463424.URPN.	USPAT	2003/12/02 11:09
	-	679	381/98.ccls.	USPAT;	2003/12/02 11:22
				US-PGPUB;	
				EPO; JPO;	
				DERWENT	·
	-	8	"all" with pass with filter	USPAT;	2003/12/02 11:28
				US-PGPUB;	
				EPO; JPO;	
				DERWENT	
	-	493	(?II adj pass ?II near3 pass) with filter	USPAT;	2003/12/02 11:28
			(, , , , ,	US-PGPUB;	
				EPO; JPO;	
				DERWENT	
	_	7	5230022.URPN.	USPAT	2003/12/02 11:31
	_	4	5912975.URPN.	USPAT	2003/12/02 11:31
		1	6321076.URPN.	ł .	1
	-			USPAT	2003/12/02 11:39
	-	5	("5901349" "5912975" "6029059" "6081697"	USPAT	2003/12/02 11:39
			"6151313").PN.	LICD A T	0007/10/00 11 15
	-	4	5912975.URPN.	USPAT	2003/12/02 11:42
	-	15	("Re29171" "4191852" "4218585" "4817162"	USPAT	2003/12/02 11:42
			"4873722" "4980914" "5119420" "5121433"		
			"5230022" "5339363" "5420929" "5692050"		
			"5742687" "5761313" "5809149").PN.		
	-	4	RE29171.URPN.	USPAT	2003/12/02 11:43
	-	10		USPAT	2003/12/02 11:45
	-	6	5235646.URPN.	USPAT	2003/12/02 11:46
	_	284		USPAT;	2003/12/02 12:00
			frequenc\$3)	US-PGPUB;	
			inequence of	EPO; JPO;	
			,	DERWENT	
-	_	121	(381/98.ccls. and ((low lower) adj frequenc\$3 bass near4	l	2007/12/02 12:07
	-	121		USPAT;	2003/12/02 12:03
			frequenc\$3)) and (phase near3 shift\$3 delay)	US-PGPUB;	
				EPO; JPO;	
				DERWENT	

,				
•	57	(381/98.ccls. and ((low lower) adj frequenc\$3 bass near4 frequenc\$3)) and (phase near3 shift\$3)	USPAT; US-PGPUB; EPO; JPO;	2003/12/02 12:56
			DERWENT	
-	0		USPAT	2003/12/02 12:15
-	17	"3864516" "3883692" "3883832" "3885099" "3943287" "3944735" "3959590" "4306200" "4704728" "4706287" "4891839" "4932059"	USPAT	2003/12/02 12:15
-	4		USPAT	2003/12/02 12:42
	2	•	USPAT	2003/12/02 12:52
_	11		USPAT	2003/12/02 12:54
-	13		USPAT	2003/12/02 12:55
-	887		USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/02 15:00
-	10	(first adj aduio signal and second adj audio adj signal) and relative with phase near2 shift\$3	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/02 12:56
_	24	4356349.URPN.	USPAT	2003/12/02 13:04
	6	5235646.URPN.	USPAT	2003/12/02 13:30
-	2683	"each"	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/02 13:32
-	25868	(delay phase adj shift\$3) with channel	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/02 13:35
-	4950	(phase adj shift\$3) with channel	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/02 13:35
-	136	(phase adj shift\$3) with channel and (five six) near3 channels	USPAT; US-PGPUB; EPO; JPO;	2003/12/02 13:35
-	3	relative near3 (phase adj shift\$3) with channel and (five six) near3 channels	DERWENT USPAT; US-PGPUB; EPO; JPO;	2003/12/02 13:35
-	5	("5642427" "5657391" "5883962" "5912975" "6111958").PN.	DERWENT USPAT	2003/12/02 13:58
-	O	6507657.URPN.	USPAT	2003/12/02 14:06
-	62		USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/04 17:41
-	58	(381/97.ccls. and ((low bass) near3 frequenc\$3)) and phase	USPAT; US-PGPUB; EPO; JPO; DERWENT	2003/12/02 14:13

-	34	("3541266" "4239939" "4308424" "4394535"	USPAT	2003/12/02 14:18
		"4479235" "4489432" "4496979" "4594610"		
		"4706287" "4748669" "4819269" "4836329"		
		"5251260" "5319713" "5333201" "5339363"		
		"5459813" "5638452" "5661808" "5771295"		
		"5784468" "5850453" "5870480" "5995631"		
		"6122381" "6243476").PN.		
-	878	relative with phase with channels	USPAT;	2003/12/02 15:00
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	· ·
-	650	first adj audio adj signal and second adj audio adj signal	USPAT;	2003/12/02 15:01
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	5	(relative with phase with channels) and (first adj audio adj	USPAT;	2003/12/02 15:01
		signal and second adj audio adj signal)	US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	14	("2093540" "2836662" "2845491" "3236949"	USPAT	2003/12/02 15:07
		"3560656" "3892624" "3970787" "4027101"		
		"4058675" "4069394" "4139728" "4149036"		
		"4159397" "4218585").PN.		
-	30	4218585.URPN.	USPAT	2003/12/02 15:08
_	15	("4107463" "4876719" "5189562" "5319713"	USPAT	2003/12/02 15:15
		"5402500" "5434922" "5701346" "5729227"		
		"5771295" "5841993" "5870365" "5870480"		
		"5896358" "6023490" "6173024").PN.		
.	10	("3632886" "3746792" "3959590" "4589129"	USPAT	2003/12/02 15:18
		"4680796" "4799260" "5172415" "5319713"		2000/ 12/02 10/10
		"5333201" "5642423").PN.		
-	3	5671287.URPN.	USPAT	2003/12/02 16:00
-	3	("3670106" "4653096" "5208860").PN.	USPAT	2003/12/02 16:02
-	15	("3962543" "4188504" "4218585" "5173944"	USPAT	2003/12/02 17:14
		"5181248" "5386082" "5438623" "5452359"		
		"5495534" "5500900" "5526429" "5687239"		
		"5761314" "5796843" "6021205").PN.		
_	710	emphasiz\$3 with (low bass) adj frequenc\$3	USPAT;	2003/12/02 17:20
			US-PGPUB;	
			EPO; JPO;	,
			DERWENT	
-	92	(emphasiz\$3 with (low bass) adj frequenc\$3) and (phase	USPAT;	2003/12/02 18:05
		with shift\$3)	US-PGPUB;	
			EPO; JPO;	
			DERWENT	
_	3	("5654909" "5691929" "5926455").PN.	USPAT	2003/12/02 17:25
-	4	l ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '	USPAT	2003/12/02 17:32
		"4987378").PN.		
-	6	3895321.URPN.	USPAT	2003/12/02 17:33
-	5	5654909.URPN.	USPAT	2003/12/02 17:33
-	2	("5654909" "5892833").PN.	USPAT	2003/12/02 17:35
-	5	5654909.URPN.	USPAT	2003/12/02 17:36
-	3	("5313494" "5617480" "5654909").PN.	USPAT	2003/12/02 17:36
-	4	("3895321" "4495643" "4701717"	USPAT	2003/12/02 17:37
		"4987378").PN.		
_	20		USPAT	2003/12/02 17:38
-		5657391.URPN.	USPAT	2003/12/02 17:46
L	<u>:</u> _	L	1	

-	17	("3746792" "4159397" "4188504" "4349698"	USPAT	2003/12/02 17:48
		"5123050" "5173944" "5216718" "5261005"		
		"5404406" "5524053" "5546465" "5579396"		
		"5604809" "5657391" "5680464" "5727067"		
	1	"5872851").PN.		
-	0	6507657.URPN.	USPAT	2003/12/02 17:56
_	5	("5642427" "5657391" "5883962" "5912975"	USPAT	2003/12/02 17:56
		"6111958").PN.		
-	71	("4239936" "4363007" "4409435" "4442546"	USPAT	2003/12/02 17:59
		"4459851" "4495643" "4517415" "4559642"		
		"4581758" "4589137" "4622692" "4628529"		
		"4653102" "4653606" "4658426" "4696043"		
		"4718096" "4731850" "4741038" "4750207"		
		"4769847" "4802227" "4811404" "4910718"		
		"4910719" "4932063" "4937871" "4956867"		
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		"5701344" "5715319" "5727073").PN.		
-	6	3895321.URPN.	USPAT	2003/12/02 17:59
-	2	5325440.URPN.	USPAT	2003/12/02 18:04
-	23	381/97.ccls. and 381/98.ccls.	USPAT;	2003/12/02 18:14
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	7	5230022.URPN.	USPAT	2003/12/02 18:09
-	1251	relative same phase same (shift\$3 difference) same channels	USPAT;	2003/12/02 18:16
		relative same phase same (similar same charmes	US-PGPUB;	2005/12/02 10110
			EPO; JPO;	
			DERWENT	
_	92	(relative same phase same (shift\$3 difference) same channels)	USPAT;	2003/12/02 18:15
	72	and 381/\$.ccls.	US-PGPUB;	2003/12/02 10:13
		allu 561/ \$.ccis.	EPO; JPO;	
1	30	relative came phase came (chift 7 difference) came channels	DERWENT	2007/12/02 10 20
-	29	relative same phase same (shift\$3 difference) same channels	USPAT;	2003/12/02 18:20
		same (low bass) adj frequenc\$3	US-PGPUB;	
			EPO; JPO;	
		1 14 / 1 (A 7 1) 100	DERWENT	0007/10/05 15 55
-	2557	phase with (shift\$3 difference) with (low bass) adj	USPAT;	2003/12/02 18:20
		frequenc\$3	US-PGPUB;	
			EPO; JPO;	,
			DERWENT	
-	686	(phase with (shift\$3 difference) with (low bass) adj	USPAT;	2003/12/02 18:21
		frequenc\$3) and (381/\$.ccls. audio sound music acoustic)	US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	29	5083224.URPN.	USPAT	2003/12/02 18:26
-		5119420.URPN.	USPAT	2003/12/02 18:32
-	6	5235646.URPN.	USPAT	2003/12/02 18:37
-	15	("3632886" "3708631" "3746792" "3836715"	USPAT	2003/12/02 18:41
		"3864516" "3883692" "3883832" "3885099"		
		"3943287" "3944735" "3959590" "4704728"		
		"4891839" "4932059" "5046098").PN.		
	4	in=- :- : - : - : : - : : : : : : : : : :	USPAT	2003/12/04 16:56
l -		:		£003/ £/07 10:30
-	•	"5305386").PN.		

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	7.7	4356349.URPN.	USPAT	2003/12/04 17:25
-	24 123		USPAT;	2003/12/04 17:23
-	123	361/9/.ccis. and 361/9/.ccis.	US-PGPUB;	2003/12/04 17:41
			EPO; JPO;	
			DERWENT	
-	23	381/97.ccls. and 381/98.ccls.	USPAT;	2003/12/04 17:49
			US-PGPUB;	
			EPO; JPO;	
	•		DERWENT	
_	2	4403112.URPN.	USPAT	2003/12/04 17:43
_	2		USPAT	2003/12/04 17:44
	123		USPAT;	2003/12/04 18:07
	123	301777.ccis.	US-PGPUB;	2000: 12/01 10:01
			EPO; JPO;	
			DERWENT	
		4470074 HDDV		2007/12/04 18:00
-		4472834.URPN.	USPAT	2003/12/04 18:00
-	7		USPAT	2003/12/04 18:03
-	412	381/61.ccls.	USPAT;	2003/12/04 18:07
			US-PGPUB;	
			EPO; JPO;	
	1		DERWENT	
_	209	381/61.ccls. and (phase same shift\$3 delay\$3)	USPAT;	2003/12/04 18:08
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
	100	(701//1 J / / hara see think? Jalank?\\ and /hara		2007/12/04 10 10
-	100	(381/61.ccls. and (phase same shift\$3 delay\$3)) and (bass	USPAT;	2003/12/04 18:10
		low) with frequenc\$3	US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	22	((381/61.ccls. and (phase same shift\$3 delay\$3)) and (bass	USPAT;	2003/12/04 18:28
		low) with frequenc\$3) and (five six "5" "6") with channels	US-PGPUB;	
			EPO; JPO;	
			DERWENT	
_	5	("5642427" "5657391" "5883962" "5912975"	USPAT	2003/12/04 18:18
		"6111958").PN.	451711	2003/12/01/10/10
	2718	1 '	USPAT;	2003/12/04 18:28
-	2/10	bugge Mini 2001:32 Mini eduanou	US-PGPUB;	2003/12/04 18:28
			EPO; JPO;	
	_		DERWENT	0007/40/21 12 12
-	51	(phase with shift\$3 with equation) and 381/\$.ccls.	USPAT;	2003/12/04 19:49
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	6	3777076.URPN.	USPAT	2003/12/04 18:32
_	2	3845245.URPN.	USPAT	2003/12/04 18:37
_	3	("3745252" "3777076" "3787622").PN.	USPAT	2003/12/04 18:38
_	5	("3745252" "3718773" "3708631" "3684835"	USPAT	2003/12/04 18:42
-		(3743232	Justa	2003/12/07 10.72
			LICDAT	2007/12/04 10.54
-	2	, ,	USPAT	2003/12/04 18:54
-	9	3856992.URPN.	USPAT	2003/12/04 19:00
-	4		USPAT	2003/12/04 19:45
-	2635	phase with shift\$3 and "270" and "0" and "180" and "90"	USPAT;	2003/12/04 19:51
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	28	(phase with shift\$3 and "270" and "0" and "180" and	USPAT;	2003/12/04 19:56
		"90") and 381/\$.ccls.	US-PGPUB;	
		, ,	EPO; JPO;	
			DERWENT	
			DEVALEM	1

-	173467	"90" adj degree	USPAT; US-PGPUB;	2003/12/04 19:55
,			EPO; JPO; DERWENT	
-	317	"90" adj degree and "0" adj degree and "270" adj degree and "180" adj degree and phase same shift\$3	USPAT; US-PGPUB;	2003/12/04 21:33
			EPO; JPO; DERWENT	
-	455	(phase with shift\$3 and "270" and "0" and "180" and "90") and (381/\$.ccls. 7??/\$.ccls.)	USPAT; US-PGPUB; EPO; JPO;	2003/12/04 22:20
	25	774E2E4 LIDDNI	DERWENT USPAT	2003/12/04 20:00
	70	3745254.URPN. ("3229038" "3246081" "3249696" "3665105"	USPAT	2003/12/04 20:00
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		"4219696" "4237343" "4303800" "4308423"		
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		"4497064" "4503554" "4567607" "4569074"		
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		"4888809" "4953213" "5033092" "5046097"		
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		"5251260" "5255326" "5325435" "5371799" "5533129" "5572591").PN.		
-	1	5970152.URPN.	USPAT	2003/12/04 20:42
-	8	("5200709" "5257313" "5459790" "5680464"	USPAT	2003/12/04 20:44
		"5748746" "5970152" "6009179" "6122382").PN.		
-	26		USPAT;	2003/12/04 21:34
Ì		and "180" adj degree and phase same shift\$3) and	US-PGPUB;	
		(381/\$.ccls. 7??/\$.ccls.)	EPO; JPO;	
	709	("00" and "0" and "270" and "190") same degree and	DERWENT USPAT;	2007/12/04 21 74
-	709	("90" and "0" and "270" and "180") same degree and phase same shift\$3	US-PGPUB;	2003/12/04 21:34
		priase same sinterpo	EPO; JPO;	
			DERWENT	
-	81	(("90" and "0" and "270" and "180") same degree and	USPAT;	2003/12/04 21:35
		phase same shift\$3) and (381/\$.ccls. 7??/\$.ccls.)	US-PGPUB;	
			EPO; JPO;	
	55	((("90" and "0" and "270" and "180") same degree and	DERWENT	2007/12/04 21 70
-	33	phase same shift\$3) and (381/\$.ccls. 7??/\$.ccls.)) not	USPAT; US-PGPUB;	2003/12/04 21:39
		(("90" adj degree and "0" adj degree and "270" adj degree	EPO; JPO;	•
		and "180" adj degree and phase same shift\$3) and	DERWENT	
		(381/\$.ccls. 7??/\$.ccls.))		
-	2548	frequency adj spacing	USPAT;	2003/12/04 21:39
			US-PGPUB;	
			EPO; JPO;	
_	27	(frequency adj spacing) and (all-pass allpass) with filter	DERWENT USPAT;	2003/12/04 22:22
	21	(inequency and spacing) and (an-pass anpass) with fine	US-PGPUB;	2003/12/07 22:22
			EPO; JPO;	
			DERWENT	
			L	

122					
122 ((frequency adj spacing) and (pass) with filter) and (381/\$.ccis. 7??/\$.ccis.) 12003/12/04 22:21 1297. 1	-	891	(frequency adj spacing) and (pass) with filter	USPAT;	2003/12/04 22:20
Comparison of the pass of th					
122				EPO; JPO;	
381/\$.cds. 779/\$.cds.) US-PCPUB; EPO; IPO; DERWENT USPAT; US-PCPUB; EPO; IPO; DERWENT USPAT; US-PCPUB; EPO; IPO; DERWENT USPAT; US-PCPUB; EPO; IPO; DERWENT USPAT; US-PCPUB; EPO; IPO; DERWENT USPAT; US-PCPUB; EPO; IPO; DERWENT USPAT; US-PCPUB; EPO; IPO; DERWENT USPAT; US-PCPUB; EPO; IPO; DERWENT USPAT; US-PCPUB; EPO; IPO; DERWENT USPAT; US-PCPUB; EPO; IPO; IPO; IPO; IPO; IPO; IPO; IPO; I	,			DERWENT	
381/\$.cds. 779/\$.cds.) US-PCPUB; EPO; IPO; DERWENT USPAT; US-PCPUB; EPO; IPO; DERWENT USPAT; US-PCPUB; EPO; IPO; DERWENT USPAT; US-PCPUB; EPO; IPO; DERWENT USPAT; US-PCPUB; EPO; IPO; DERWENT USPAT; US-PCPUB; EPO; IPO; DERWENT USPAT; US-PCPUB; EPO; IPO; DERWENT USPAT; US-PCPUB; EPO; IPO; DERWENT USPAT; US-PCPUB; EPO; IPO; DERWENT USPAT; US-PCPUB; EPO; IPO; IPO; IPO; IPO; IPO; IPO; IPO; I	1.	122	((frequency adj spacing) and (pass) with filter) and	USPAT:	2003/12/04 22:21
- 27 (frequency adj spacing) and (all-pass allpass all? adj pass) with filter - 0 (all? adj pass) with filter - 24 4356349.URPN 59 ("Re25652" "3170991" "3219757" "3236949" USPAT, USPAT					
Crequency adj spacing) and (all-pass allpass all? adj pass) with filter			(301/ \$.ccis. /::/ \$.ccis./		
Color					
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CallP adj pass with filter Call	-	27	1		2003/12/04 22:23
- 0 (all? adl pass) with filter			filter	,	
- 0 (all? adj pass) with filter - 24				EPO; JPO;	
- 24				DERWENT	
- 24	1_	0	(all? adi pass) with filter	USPAT:	2003/12/04 22:23
- 24 4356349.URPN. 3219757" "3236949" USPAT			(unv un, puns,		
- 24					
- 24 4356349_URPN. ("Re25652" "3170991" "3219757" "3236949" USPAT ("Re25652" "3170991" "3219757" "3236949" USPAT ("Re25652" "3170991" "4197578" "4193975" "4192669" "4198585" "4208546" "4209655" "4218585" "45674077 "4603492" "4625326" "4496035" "47634329" "4625326" "4496353" "4703488" "4702687" "4785300" "4893442" "4908858" "4910778" "4910779" "4975757" "5301326" "5319713" "5319713" "5313200" "5381482" "5304851" "517329" "5515700" "5524053" "5534051" "517329" "5515700" "5524053" "5534051" "517329" "5515700" "5524053" "5534051" "517329" "540339" "5515700" "5524053" "5534051" "517329" "540339" "5515700" "5524053" "5534051" "517329" "5404359" "5515700" "571296" "571296" "571296" "5717329" "5406488" "5003712/14 22:24 "571296" "571296" "571296" "571296" "533248" "5003/12/14 23:24 "597296" "5406359" "5406389" "3612211" "4905748" "4118600" "4118600" "4805769" "5506888" "5568889" "5568889" "5566888" "5566888" "5771299"					
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"3238304" "3249696" "3892624" "4039755" "4068093" "4118599" "4139728" "4159397" "4192969" "4199658" "4208546" "4209665" "4218585" "4309570" "43536349" "4388494" "4394537" "4567607" "4603429" "4428230" "4490635" "4700389" "4706287" "4782530" "4893342" "4908858" "4700289" "4782530" "4893342" "4908858" "5052685" "5052649" "5095507" "5095787" "5136651" "5173944" "5208493" "5301236" "5319713" "5331200" "5381482" "53484851" "5412732" "5418856" "5420929" "5436975" "554665" "35553149" "5520853" "5533129" "5546465" "5555149" "5579396" "5581618" "5598478").PN. all adj pass with low adj frequenc\$3 USPAT; USPA	-	i i			
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"4192969" "4199658" "4208546" "4209665" "4208565" "4309570" "4356349" "438494" "438494" "4394337" "4567607" "4303429" "4425326" "44096035" "4700389" "4706287" "4706228" "4706288" "5056149" "4903342" "49038458" "5052685" "5056149" "5208493" "5301236" "5316651" "5173944" "5208493" "5301236" "5316651" "5173944" "5208493" "53301236" "53163651" "5513944" "5240929" "5340929" "5440929" "5440929" "5440929" "5440929" "5440929" "5430929" "5546465" "5553149" "5579396" "5581618" "5546465" "5553149" "579396" "5581618" "5546465" "5553149" "579396" "5581618" "5598478").PN.			"3238304" "3249696" "3892624" "4039755"		
"4192969" "4199658" "4208546" "4209665" "4208565" "4309570" "4356349" "438494" "438494" "4394337" "4567607" "4303429" "4425326" "44096035" "4700389" "4706287" "4706228" "4706288" "5056149" "4903342" "49038458" "5052685" "5056149" "5208493" "5301236" "5316651" "5173944" "5208493" "5301236" "5316651" "5173944" "5208493" "53301236" "53163651" "5513944" "5240929" "5340929" "5440929" "5440929" "5440929" "5440929" "5440929" "5430929" "5546465" "5553149" "5579396" "5581618" "5546465" "5553149" "579396" "5581618" "5546465" "5553149" "579396" "5581618" "5598478").PN.		İ	"4068093" i "4118599" i "4139728" i "4159397" i		
"4218855" "4309570" "4356349" 44388494" "4394537" "4567607" "4603429" "44625326" "4696035" "4700389" "4706287" "4782530" "44983342" "4908858" "4910778" "4910779" "4975954" "50394883" "5036885" "50516149" "5095507" "5095787" "5136651" "5173944" "5208493" "35301236" "5319713" "5333200" "5381482" "3584851" "5412722" "5418856" "5240929" "5436975" "5440639" "5517570" "5579396" "5581618" "5594465" "5553149" "5579396" "5581618" "5598478").PN. all adj pass with low adj frequenc\$3					
"4394537" "4567607" "4603429" "4425326" "4696035" "4700389" "4706287" "4782530" "4893342" "4908858" "4910778" "4910779" "4975954" "5034983" "5052685" "5056149" "5095507" "5095587" "5136651" "5173944" "5208493" "5301236" "5319713" "5333200" "5381482" "5384851" "5517570" "55409529" "5436975" "5544665" "55573199" "5579396" "5581618 "55798478").PN. all adj pass with low adj frequenc\$3			· · · · · · · · · · · · · · · · · · ·		
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"4975954" "5034983" "5052685" "505419" "509507" "5095787" "5136651" "5173944" "5208493" "5301236" "5319713" "5333200" "5381482" "5384851" "5412732" "5418856" "5420929" "5436975" "5446639" "55157570" "5524053" "5533129" "5546465" "5553149" "5579396" "5581618" "5598478").PN. all adj pass with low adj frequenc\$3 - 47 all-pass with low adj frequenc\$3 griesinger.in. - 11 griesinger, david".in. - 11 "griesinger, david".in. - 18 "klayman".in. and 381/\$.ccis. - 2 5892830.URPN. - 2 5892830.URPN. ("1616639" "1951669" "2113976" "2315248" "2315249" "2461344" "3398810" "3612211" "2115249" "2461344" "3398810" "3612211" "4045748" "4118600" "4182930" "4481662" "4836329" "48481572" "4866774" "5067157" "5177329" "5251260" "5319713" "5333201" "5177329" "5251260" "5319713" "5333201" "5177329" "5251260" "5319713" "5333201" "5379655" "5459813" "55638452" "57844688"		1			
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"5381482" "5384851" "5412732" "541856" "5420929" "5436975" "5540639" "5517570" "5524053" "5533129" "5553149" "5579396" "5581618" "5598478").PN. -					
- 0 "5420929" "5436975" "5440639" "5517570" "5524053" "553129" "5546465" "5553149" "5579396" "5581618" "5598478").PN. all adj pass with low adj frequenc\$3 - 47 all-pass with low adj frequenc\$3 USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB;		•			
- 0 "5524053" "5533129" "5546465" "5553149" "5579396" "5581618" "5598478").PN.			, , , , , , , , , , , , , , , , , , , ,		
- 0 "5579396" "5581618" "5598478").PN.					
- 47 all-pass with low adj frequenc\$3 - 47 all-pass with low adj frequenc\$3 - 47 all-pass with low adj frequenc\$3 - 48 all-pass with low adj frequenc\$3 - 133 griesinger.in. - 11 "griesinger, david".in. - 18 "klayman".in. and 381/\$.ccis. - 2 5892830.URPN 2 5892830.URPN 35 ("1616639" "1951669" "2113976" "2315248" US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT US-PGPUB; EPO; JPO; DERWENT US-PGPUB; EPO; JPO; JPO; DERWENT US-PGPUB; EPO; JPO; DERWENT US-PGPUB; EPO;		•			
US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT U					
EPO; JPO; DERWENT USPAT; US-PCPUB; EPO; JPO; DERWENT US-PCPUB; EPO; JP	-	0	all adj pass with low adj frequenc\$3		2003/12/14 22:15
- 47 all-pass with low adj frequenc\$3 - 133 griesinger.in. - 11 "griesinger, david".in. - 18 "klayman".in. and 381/\$.ccls. - 2 5892830.URPN 2 5892830.URPN 2 1616639" "1951669" "2113976" "2315248" USPAT; USPGUB; EPO; JPO; DERWENT USPAT; US-PGPUB;				US-PGPUB;	
- 47 all-pass with low adj frequenc\$3 - 133 griesinger.in. - 11 "griesinger, david".in. - 18 "klayman".in. and 381/\$.ccls. - 2 5892830.URPN 2 5892830.URPN 2 1616639" "1951669" "2113976" "2315248" USPAT; USPGUB; EPO; JPO; DERWENT USPAT; US-PGPUB;				EPO; JPO;	
- 47 all-pass with low adj frequenc\$3 - 133 griesinger.in. 134 griesinger, david".in. 135 griesinger, david".in. 15 griesinger, david".in. 16 griesinger, david".in. 17 griesinger, david".in. 18 griesinger, david".in. 18 griesinger, david".in. 19 griesinger, david".in. 10 griesinger, david".in. 10 griesinger, david".in. 11 griesinger, david".in. 12 griesinger, david".in. 13 griesinger, david".in. 14 griesinger, david".in. 15 griesinger, david".in. 16 griesinger, david".in. 17 griesinger, david".in. 18 griesinger, david".in. 18 griesinger, david".in. 18 griesinger, david".in. 18 griesinger, david".in. 18 griesinger, david".in. 18 griesinger, david".in. 18 griesinger, david".in. 18 griesinger, david".in. 18 griesinger, david".in. 18 griesinger, david".in. 18 griesinger, david".in. 18 griesinger.in. 2003/12/14 23:24 2003/12/14				1	
US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT	_	47	all-pass with low adi frequenc\$3		2003/12/14 22:24
- 133 griesinger.in. EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT		17	an pass with fow adj frequencys		2003/ 12/ 1 22:21
- 133 griesinger.in. - 11 "griesinger, david".in. - 18 "klayman".in. and 381/\$.ccls. - 2 5892830.URPN 2 5892830.URPN 35 ("1616639" "1951669" "2113976" "2315248" USPAT; USPAT USPAT; USPGPUB; EPO; JPO; DERWENT USPAT; USPGPUB; EPO; JPO; DERWENT USPAT; USPGPUB; EPO; JPO; DERWENT USPAT					
- 133 griesinger.in. - 11 "griesinger, david".in. 11 "griesinger, david".in. 18 "klayman".in. and 381/\$.ccls. 2 5892830.URPN. - 2 5892830.URPN. - 35 ("1616639" "1951669" "2113976" "2315248" "2315249" "2461344" "3398810" "3612211" "4045748" "4118600" "4182930" "4481662" "4698842" "4748669" "4790014" "4819269" "4836329" "4841572" "4866774" "5067157" "5177329" "5251260" "5319713" "5333201" "5359665" "5459813" "5638452" "5661808" "5668885" "5771295" "5771296" "5784468"					
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- 11 "griesinger, david".in. 18 "klayman".in. and 381/\$.ccis. 2 5892830.URPN 2 5892830.URPN 35 ("1616639" "1951669" "2113976" "2315248" "2315249" "2461344" "3398810" "3612211" "4045748" "4118600" "4182930" "4481662" "4698842" "4748669" "4790014" "481269" "4836329" "4841572" "4866774" "5067157" "5177329" "5251260" "5319713" "5333201" "5359665" "5459813" "5638452" "5661808" "5668885" "5771295" "5771296" "5784468"	-	133	griesinger.in.		2003/12/14 22:24
- 11 "griesinger, david".in. 18 "klayman".in. and 381/\$.ccls. 2 5892830.URPN 25 ("1616639" "1951669" "2113976" "2315248" USPAT; USPAT; USPGPUB; EPO; JPO; DERWENT USPAT; US-GPUB; EPO; JPO; DERWENT USPAT; US-GPUB; EPO; JPO; DERWENT USPAT USP	1			US-PGPUB;	
- 11 "griesinger, david".in. 18 "klayman".in. and 381/\$.ccls. 2 5892830.URPN 25 ("1616639" "1951669" "2113976" "2315248" USPAT; USPAT; USPGPUB; EPO; JPO; DERWENT USPAT; US-GPUB; EPO; JPO; DERWENT USPAT; US-GPUB; EPO; JPO; DERWENT USPAT USP	1			EPO; IPO;	
- 11 "griesinger, david".in. 18 "klayman".in. and 381/\$.ccls. 2 5892830.URPN 2 5892830.URPN 35 ("1616639" "1951669" "2113976" "2315248" "2315249" "2461344" "3398810" "3612211" "4045748" "4118600" "4182930" "4481662" "4698842" "4748669" "4790014" "4819269" "4836329" "4841572" "486674" "5067157" "5177329" "5251260" "5319713" "5333201" "5359665" "5459813" "5638452" "5661808" "5668885" "5771295" "5771296" "5784468"					
US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT USPAT	1_	11	"oriesinger david" in	ł c	2003/12/14 23:06
- 18 "klayman".in. and 381/\$.ccis. 2 5892830.URPN 2 5892830.URPN 35 ("1616639" "1951669" "2113976" "2315248" USPAT US		''	Briconiger, durin and		
- 18 "klayman".in. and 381/\$.ccis. 2 5892830.URPN 35 ("1616639" "1951669" "2113976" "2315248" USPAT USPA	1				
- 18 "klayman".in. and 381/\$.ccis. 2 5892830.URPN 35 ("1616639" "1951669" "2113976" "2315248" USPAT USPA					
US-PGPUB; EPO; JPO; DERWENT USPAT 2003/12/14 23:10 USPAT USPAT USPAT USPAT USPAT USPAT 2003/12/14 23:11 USPAT USPAT 2003/12/14 23:11 USPAT USPAT 2003/12/14 23:11 USPAT USPAT 2003/12/14 23:11 USPAT 2003/12/14 20:11 USPAT 2003/12/14 20:11 USPAT 2003/12/14 20:11 USPAT 2003/12/14 20:11 USPAT 2003/12/1				P .	
2 5892830.URPN. - 35 ("1616639" "1951669" "2113976" "2315248" USPAT "4045748" "4118600" "4182930" "4481662" "4698842" "4748669" "4790014" "4819269" "4836329" "4841572" "4866774" "5067157" "5177329" "5251260" "5319713" "5333201" "55359665" "5459813" "5638452" "5661808" "55668885" "5771295" "5771296" "5784468"	-	18	"klayman".in. and 381/\$.ccls.		2003/12/14 23:24
- 2 5892830.URPN. - 35 ("1616639" "1951669" "2113976" "2315248" USPAT 2003/12/14 23:10 USPAT 2003/12/14 USPAT 2003/12/14 USPAT 2003/12/14 USPAT 2003/12/14 USPAT 2003/12/14 USPAT 2003/12/14 USPAT 200				US-PGPUB;	
- 2 5892830.URPN. - 35 ("1616639" "1951669" "2113976" "2315248" USPAT 2003/12/14 23:10 USPAT 2003/12/14 USPAT 2003/12/14 USPAT 2003/12/14 USPAT 2003/12/14 USPAT 2003/12/14 USPAT 2003/12/14 USPAT 200				EPO: IPO:	
- 2 5892830.URPN. - 35 ("1616639" "1951669" "2113976" "2315248" USPAT "4045748" "4118600" "4182930" "4481662" "4698842" "4748669" "4790014" "4819269" "4836329" "4841572" "4866774" "5067157" "5177329" "5251260" "5319713" "5333201" "55359665" "5459813" "5638452" "5661808" "5668885" "5771295" "5771296" "5784468"					
- 35 ("1616639" "1951669" "2113976" "2315248" USPAT "2315249" "2461344" "3398810" "3612211" "4045748" "4118600" "4182930" "4481662" "4698842" "4748669" "4790014" "4819269" "4836329" "4841572" "4866774" "5067157" "5177329" "5251260" "5319713" "5333201" "5359665" "5459813" "5638452" "5661808" "5668885" "5771295" "5771296" "5784468"	1_	2	5892830 URPN	ł	2003/12/14 23.10
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3630433 3672631 3730373).FIN.	1		JOJUTJJ JO/ZOJI J73UJ/J /.FN.		

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-	14	("2093540" "2836662" "2845491" "3236949" "3560656" "3892624" "3970787" "4027101" "4058675" "4069394" "4139728" "4149036"	USPAT	2003/12/14 23:11
-	7	"4159397" "4218585").PN. 5230022.URPN.	USPAT	2003/12/14 23:21
-	67	4356349.URPN. low adj frequency adj enhanc\$5	USPAT USPAT;	2003/12/14 23:22 2003/12/14 23:24
	11	(low adj frequency adj enhanc\$5) and low adj pass	US-PGPUB; EPO; JPO; DERWENT USPAT;	2003/12/14 23:37
	• •	(low auj frequency auj emianc\$5) and low auj pass	US-PGPUB; EPO; JPO; DERWENT	2003/12/14 23:37
	30	4218585.URPN.	USPAT	2003/12/14 23:28
_	61	("3170991" "3246081" "3249696" "3665105"	USPAT	2003/12/14 23:29
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		"5533129" "5661808" "5692050" "5850454" "5883962").PN.		
-	19	(creat\$3 generat\$3 establish\$3 making) with low adj	USPAT;	2003/12/15 10:26
		frequency adj (channel signal) near6 low adj pass	US-PGPUB;	,
			EPO; JPO;	
	_		DERWENT	
-	2	4251685.pn.	USPAT;	2003/12/15 10:26
			US-PGPUB;	
			EPO; JPO;	
		4010770	DERWENT	0007/10/15 10 01
-	2	4910779.pn.	USPAT;	2003/12/15 10:26
			US-PGPUB;	
			EPO; JPO;	
	104	chift 4 with limited with frequence 7 with range	DERWENT	2004/04/20 17:77
-	186	shift\$4 with limited with frequenc\$3 with range	USPAT; US-PGPUB;	2004/06/28 13:33
			EPO; JPO; DERWENT	
	100	shift\$4 with limited with frequenc\$3 near2 range	USPAT;	2004/06/28 13:33
_	100	Suncy & with minica with Heducile \$2 Hediz Idlige	US-PGPUB;	2007/00/20 13:33
			EPO; JPO;	
			DERWENT	
-	o	(shift\$4 with limited with frequenc\$3 near2 range) and	USPAT;	2004/06/28 13:34
		(381/\$.ccls)	US-PGPUB;	_00 1/ 00/ ZU 13:3T
		(00.74.000)	EPO; JPO;	
			DERWENT	
_	О	(shift\$4 with limited with frequenc\$3 near2 range) and	USPAT;	2004/06/28 13:34
		(181/\$.ccls)	US-PGPUB;	
		,	EPO; JPO;	
1			DERWENT	
L	l	L	L	l

-	5	(shift\$4 with limited with frequenc\$3 near2 range) and (381/\$.ccls.)	USPAT; US-PGPUB;	2004/06/28 13:34
			EPO; JPO; DERWENT	
_	26	4356349.URPN.	USPAT	2004/06/28 14:11
_	59	("Re25652" "3170991" "3219757" "3236949"	USPAT	2004/06/28 14:15
	3,	"3238304" "3249696" "3892624" "4039755"	40.71.	200 17 00. 20 1 11.15
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		"4975954" "5034983" "5052685" "5056149"		
		"5095507" "5095787" "5136651" "5173944"		
		"5208493" "5301236" "5319713" "5333200"		
		"5381482" "5384851" "5412732" "5418856"		
		"5420929" "5436975" "5440639" "5517570"		
		"5524053" "5533129" "5546465" "5553149"		
		"5579396" "5581618" "5598478").PN.		
-	70	("3170991" "3229038" "3238304" "3246081"	USPAT	2004/06/28 14:38
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		"4355203" "4356349" "4388494" "4393270"		
		"4394536" "4394537" "4446488" "4489432"		
İ		"4599611" "4683496").PN.		
-	6	("3539729" "3673342" "3745254" "3753159"	USPAT	2004/06/28 15:49
	,	"3786193" "3823268").PN.		
-	143	381/10.ccls.\	USPAT;	2004/06/28 16:50
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	14	381/10.ccls. and phase near3 shift\$3	USPAT;	2004/06/28 16:51
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	4	("3943293" "4039755" "4198543"	USPAT	2004/06/28 16:58
		"4221928").PN.		
-	143	381/10.ccls.	USPAT;	2004/06/28 17:14
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	63	381/97.ccls. and (low bass) near3 frequenc\$3	USPAT;	2004/06/28 17:16
			US-PGPUB;	
			EPO; JPO;	
		(114777774011111440744011111111111111111	DERWENT	
-	10	("4356349" "4403112" "4590248" "4623708"	USPAT	2004/06/28 17:22
		"4841572" "5033092" "5172415" "5233665"		
		"5301237" "5339363").PN.		

•	459	downmix\$3 down adj (mix mixes mixing mixer mixs) and (low adj (pass frequenc\$3))	USPAT; US-PGPUB;	2004/06/29 11:04
			EPO; JPO; DERWENT	
•	2	6683962.pn.	USPAT; US-PGPUB; EPO; JPO;	2004/06/30 10:44
-	196	griesinger.in.	DERWENT USPAT; US-PGPUB; EPO; JPO;	2004/06/30 10:44
-	21	griesinger.in. and (Dave david).in.	DERWENT USPAT; US-PGPUB; EPO; JPO;	2004/06/30 11:09
-	10	("4356349" "4403112" "4590248" "4623708" "4841572" "5033092" "5172415" "5233665" "5301237" "5339363").PN.	DERWENT USPAT	2004/06/30 10:58
-	26 343	• • • • • • • • • • • • • • • • • • • •	USPAT USPAT; US-PGPUB; EPO; JPO;	2004/06/30 11:02 2004/06/30 11:11
-	213	((dual pair two) with (low adj frequency sub adj woofer subwoofer)with \$4speakers) and 381/\$.ccls.	DERWENT USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/06/30 11:12
-	1823	downmix\$3 down adj (mix mixes mixing mixer mixs)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/06/30 11:13
-	5	(((dual pair two) with (low adj frequency sub adj woofer subwoofer)with \$4speakers) and 381/\$.ccls.) and (downmix\$3 down adj (mix mixes mixing mixer mixs))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/06/30 11:17
_	0	6683962.URPN.	USPAT	2004/06/30 11:15
-	0	6683962.URPN.	USPAT	2004/06/30 11:15
-	0	6683962.URPN.	USPAT	2004/06/30 11:16
-	0	((dual pair two) with (low adj frequency sub adj woofer subwoofer)with \$4speakers) and (downmix\$3 down adj (mix mixes mixing mixer mixs)) not (((dual pair two) with (low adj frequency sub adj woofer subwoofer)with \$4speakers) and 381/\$.ccls.) and (downmix\$3 down adj (mix mixes mixing mixer mixs))) not (((dual pair two) with (low adj frequency sub adj woofer subwoofer)with \$4speakers) and 381/\$.ccls.)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/06/30 11:17
-	0	((dual pair two) with (low adj frequency sub adj woofer subwoofer)with \$4speakers) and (downmix\$3 down adj (mix mixes mixing mixer mixs)) not (((dual pair two) with (low adj frequency sub adj woofer subwoofer)with \$4speakers) and 381/\$.ccls.)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/06/30 11:17
-	5	((dual pair two) with (low adj frequency sub adj woofer subwoofer)with \$4speakers) and (downmix\$3 down adj (mix mixes mixing mixer mixs))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/06/30 11:17
-	14173	relative with phase with shift\$3	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/06/30 11:18

	14173	relative with phase with shift\$3	USPAT;	2004/06/30 11:24
	141/3	Telauve with phase with sinitage	US-PGPUB;	200 1/00/30 11.24
			EPO; JPO; DERWENT	
-	834	relative with phase with shift\$3 with (combin\$3 sum sums	USPAT;	2004/06/30 11:33
		summing)	US-PGPUB;	
			EPO; JPO; DERWENT	
_	237388	low adj (frequency pass) bass	USPAT;	2004/06/30 13:13
		ion all (magazine) pass, sees	US-PGPUB;	
			EPO; JPO;	
1_	17	(relative with phase with shift\$3 with (combin\$3 sum sums	DERWENT USPAT;	2004/06/30 11:30
]	17	summing)) with (low adj (frequency pass) bass)	US-PGPUB;	2004/00/30 11.50
		, , , , , , , , , , , , , , , , , , , ,	EPO; JPO;	
			DERWENT	2004/04/70 44 70
•	11	(relative with phase with shift\$3 with (combin\$3 sum sums summing)) same (low adj (frequency pass) bass) not ((relative	USPAT; US-PGPUB;	2004/06/30 11:30
		with phase with shift\$3 with (combin\$3 sum sums summing))	EPO; JPO;	
		with (low adj (frequency pass) bass))	DERWENT	
-	3	Transfer that the transfer that the transfer that the transfer transfer that the transfer tra	USPAT;	2004/06/30 12:00
		summing) and (sub adj woofer LFE subwoofer low adj frequency adj \$4speaker)	US-PGPUB; EPO; JPO;	
		inequency auj \$ +speaker)	DERWENT	
-	23	'	USPAT	2004/06/30 11:36
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		"5459790" "5546465" "5579396" "5598478"		_
		"5638343" "5661812" "5742689").PN.		
-	2603	enhanc\$5 with (low adj frequenc\$3 bass)	USPAT; US-PGPUB;	2004/06/30 11:37
			EPO; JPO;	
			DERWENT	
-	1782		USPAT;	2004/06/30 12:01
		summing summation sum sums summer adding combin\$5)	US-PGPUB; EPO; JPO;	
			DERWENT	
-	334		USPAT;	2004/06/30 11:42
		summing summation sum sums summer adding combin\$5))	US-PGPUB;	
		and 381/\$.ccls.	EPO; JPO; DERWENT	
-	146		USPAT;	2004/06/30 11:42
		summing summation sum sums summer adding combin\$5))	US-PGPUB;	
		and 381/\$.ccls. and low adj pass	EPO; JPO; DERWENT	
-	5	("5768394" "6009179" "6067361" "6122381"	USPAT	2004/06/30 11:57
		"6332026").PN.	.=,	
-	8	, , , , , , , , , , , , , , , , , , , ,	USPAT	2004/06/30 11:58
-	4	l .	USPAT;	2004/06/30 12:01
		summing) and (sub adj woofer LFE subwoofer low adj	US-PGPUB;	
		frequency adj \$4speaker)	EPO; JPO;	
-	3742305	adder summing summation sum sums summer adding	DERWENT USPAT;	2004/06/30 12:01
		combin\$5	US-PGPUB;	
			EPO; JPO;	
			DERWENT	

-	3	relative with phase with shift\$3 same (adder summing	USPAT;	2004/06/30 13:12
		summation sum sums summer adding combin\$5) and (sub	US-PGPUB;	
		adj woofer LFE subwoofer low adj frequency adj \$4speaker)	EPO; JPO;	
		not (relative with phase with shift\$3 with (combin\$3 sum	DERWENT	
1		sums summing) and (sub adj woofer LFE subwoofer low adj		
		frequency adj \$4speaker))		
-	2092425	first adj low adj pass and second adj low pass	USPAT;	2004/06/30 13:12
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	2250	first adj low adj pass and second adj low adj pass	USPAT;	2004/06/30 13:12
		institution and pass and second and for any pass	US-PGPUB;	200 11 00 10 10 11 2
			EPO; JPO;	
			DERWENT	
	1717	Control law add and a second add law add according	1	2004/04/70 17 17
-	1717	first adj low adj pass and second adj low adj pass and (adder	USPAT;	2004/06/30 13:13
		summing summation sum sums summer adding combin\$5)	US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	93	first adj low adj pass and second adj low adj pass and (adder	USPAT;	2004/06/30 13:14
		summing summation sum sums summer adding combin\$5)	US-PGPUB;	
		and 381/\$.ccls.	EPO; JPO;	
			DERWENT	
-	150740	low adj (frequency) bass	USPAT;	2004/06/30 13:14
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
	100	(first adi law adi pass and second adi law adi pass and (adder	USPAT;	2004/06/30 13:14
-	100	(first adj low adj pass and second adj low adj pass and (adder		2004/00/30 13:14
		summing summation sum sums summer adding combin\$5)	US-PGPUB;	
		and 381/\$.ccls.) AND81	EPO; JPO;	
			DERWENT	
-	57	(first adj low adj pass and second adj low adj pass and (adder	USPAT;	2004/06/30 13:19
		summing summation sum sums summer adding combin\$5)	US-PGPUB;	
		and 381/\$.ccls.) AND (low adj (frequency) bass)	EPO; JPO;	-
			DERWENT	
-	90	(two pair) near2 (low adj frequenc\$3 adj \$speaker	USPAT;	2004/06/30 13:20
		subwoofer sub adj woofer)	US-PGPUB;	
			EPO; JPO;	
	İ		DERWENT	
-	96	(two pair dual) near2 (low adj frequenc\$3 adj \$speaker	USPAT;	2004/06/30 13:21
		subwoofer sub adj woofer)	US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	96	(two pair dual) near2 (low adj frequenc\$3 adj \$4speaker	USPAT;	2004/06/30 15:41
		subwoofer sub adj woofer)	US-PGPUB;	
	1	,	EPO; JPO;	
	1		DERWENT	
_	11	("D233763" "1586659" "2093076" "2179840"	USPAT	2004/06/30 13:24
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	10	"3657480" "3867996" "3947635").PN.	LICDAT	2004/04/70 17 05
-	18		USPAT	2004/06/30 13:25
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		"4581589").PN.		
-	3	4905284.URPN.	USPAT	2004/06/30 15:14
-	3		USPAT	2004/06/30 15:17
-	3	("4118599" "4905284" "4933768").PN.	USPAT	2004/06/30 15:18
-	0	wo-919207.pn.	USPAT;	2004/06/30 15:41
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
		10 00 0F AM Dags 17		I

-	0	wo-919207-\$.did.	USPAT;	2004/06/30 15:42
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
_	0	wo-0919207-\$.did.	USPAT;	2004/06/30 15:42
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İ			EPO; JPO;	
			DERWENT	
-	0	wo-0919407-\$.did.	USPAT;	2004/06/30 15:42
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	0	wo-919407-\$.did.	USPAT;	2004/06/30 15:42
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	2	6240189.URPN.	USPAT	2004/06/30 15:44
-	25	("4802119" "4991217" "5193204" "5206884"	USPAT	2004/06/30 15:53
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		"6081783" "6108430" "6181796" "6205223"		
		"6240189").PN.		
-	0	gb-394325-\$.did.	USPAT;	2004/06/30 17:10
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	821	filter with factor with "16"	USPAT;	2004/06/30 17:10
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	33	(filter with factor with "16") and 381/\$.ccls.	USPAT;	2004/06/30 17:16
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
1-	1	(filter with factor with "16") and 181/\$.ccls.	USPAT;	2004/06/30 17:17
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	

(6683962.pn. griesinger.in. (griesinger.in. and (Dave USPAT: 2004/06/30 17:33 david).in.) (("4356349" | "4403112" | "4590248" | "4623708" | "4841572" | "5033092" | "5172415" | "5233665" | "5301237" | "5339363").PN.) **US-PGPUB**; EPO: 1PO: **DERWENT** 4356349.URPN. ((dual pair two) with (low adj frequency sub adj woofer subwoofer) with \$4 speakers) (((dual pair two) with (low adj frequency sub adj woofer subwoofer) with \$4speakers) and 381/\$.ccls.) (downmix\$3 down adi (mix mixes mixing mixer mixs)) ((((dual pair two) with (low adj frequency sub adj woofer subwoofer) with \$4speakers) and 381/\$.ccls.) and (downmix\$3 down adj (mix mixes mixing mixer mixs))) 6683962.URPN. 6683962.URPN. 6683962.URPN. (((dual pair two) with (low adj frequency sub adi woofer subwoofer) with \$4speakers) and (downmix\$3 down adj (mix mixes mixing mixer mixs)) not ((((dual pair two) with (low adj frequency sub adj woofer subwoofer) with \$4speakers) and 381/\$.ccls.) and (downmix\$3 down adj (mix mixes mixing mixer mixs))) not (((dual pair two) with (low adj frequency sub adj woofer subwoofer) with \$4speakers) and 381/\$.ccls.)) (((dual pair two) with (low adi frequency sub adi woofer subwoofer) with \$4speakers) and (downmix\$3 down adj (mix mixes mixing mixer mixs)) not (((dual pair two) with (low adj frequency sub adj woofer subwoofer)with \$4speakers) and 381/\$.ccls.)) (((dual pair two) with (low adj frequency sub adj woofer subwoofer) with \$4speakers) and (downmix\$3 down adi (mix mixes mixing mixer mixs))) (relative with phase with shift\$3) (relative with phase with shift\$3) (relative with phase with shift\$3 with (combin\$3 sum sums summing)) (low adj (frequency pass) bass) ((relative with phase with shift\$3 with (combin\$3 sum sums summing)) with (low adj (frequency pass) bass)) ((relative with phase with shift\$3 with (combin\$3 sum sums summing)) same (low adj (frequency pass) bass) not ((relative with phase with shift\$3 with (combin\$3 sum sums summing)) with (low adj (frequency pass) bass))) (relative with phase with shift\$3 with (combin\$3 sum sums summing) and (sub adj woofer LFE subwoofer low adj frequency adj \$4speaker)) (("2846504" | "3088997" | "3863028" | "3970787" "4088849" "4119798" "4209665" "4218585" "4308424" | "4251688" | "4589128" "5033086" "5181248" | "5371799" "5386082" | "5438623" "5459790" | "5546465" | "5579396" | "5598478" "5638343" | "5661812" | "5742689").PN.) (enhanc\$5 with (low adj frequenc\$3 bass)) (enhanc\$5 with (low adi frequenc\$3 bass) and (adder summing summation sum sums summer adding combin\$5)) ((enhanc\$5 with (low adj frequenc\$3 bass) and (adder summing summation sum sums summer adding combin\$5)) and 381/\$.ccls.)) and harmonics

-	2491	(6683962.pn. griesinger.in. (griesinger.in. and (Dave	USPAT;	2004/06/30 17:34
		david).in.) (("4356349" "4403112" "4590248"	US-PGPUB;	
		"4623708" "4841572" "5033092" "5172415"	EPO; JPO;	
		"5233665" "5301237" "5339363").PN.)	DERWENT	
		4356349.URPN. ((dual pair two) with (low adj frequency		
		sub adj woofer subwoofer)with \$4speakers) (((dual pair two)		
		with (low adj frequency sub adj woofer subwoofer)with		
		\$4speakers) and 381/\$.ccls.) (downmix\$3 down adj (mix		
		mixes mixing mixer mixs)) ((((dual pair two) with (low adj		
		frequency sub adj woofer subwoofer)with \$4speakers) and		
		381/\$.ccls.) and (downmix\$3 down adj (mix mixes mixing		
		mixer mixs))) 6683962.URPN. 6683962.URPN.		
		6683962.URPN. (((dual pair two) with (low adj frequency		
		sub adj woofer subwoofer) with \$4 speakers) and (downmix \$3		
		down adj (mix mixes mixing mixer mixs)) not ((((dual pair		
		two) with (low adj frequency sub adj woofer subwoofer) with		
		\$4speakers) and 381/\$.ccls.) and (downmix\$3 down adj	1	
	:	(mix mixes mixing mixer mixs))) not (((dual pair two) with		
1		(low adj frequency sub adj woofer subwoofer)with		
		\$4speakers) and 381/\$.ccls.)) (((dual pair two) with (low	-	
		adj frequency sub adj woofer subwoofer)with \$4speakers)		
		and (downmix\$3 down adj (mix mixes mixing mixer mixs))	1	
		not (((dual pair two) with (low adj frequency sub adj woofer		
		subwoofer) with \$4speakers) and 381/\$.ccls.)) (((dual pair		
		two) with (low adj frequency sub adj woofer subwoofer)with		
		\$4speakers) and (downmix\$3 down adj (mix mixes mixing		
		mixer mixs))) (relative with phase with shift\$3) (relative with		
		phase with shift\$3) (relative with phase with shift\$3 with		
		(combin\$3 sum sums summing)) ((relative with phase with		
		shift\$3 with (combin\$3 sum sums summing)) with (low adj		
		(frequency pass) bass)) ((relative with phase with shift\$3 with		
		(combin\$3 sum sums summing)) same (low adj (frequency		
		pass) bass) not ((relative with phase with shift\$3 with		
		(combin\$3 sum sums summing)) with (low adj (frequency		
		pass) bass))) (relative with phase with shift\$3 with		
		(combin\$3 sum sums summing) and (sub adj woofer LFE		
		subwoofer low adj frequency adj \$4speaker)) (("2846504"		
		"3088997" "3863028" "3970787" "4088849"		
		"4119798" "4209665" "4218585" "4251688"		
		"4308424" "4589128" "5033086" "5181248"		
		"5371799" "5386082" "5438623" "5459790"		
		"5546465" "5579396" "5598478" "5638343"		
		"5661812" "5742689").PN.) (enhanc\$5 with (low		
		adj frequenc\$3 bass)) (enhanc\$5 with (low adj frequenc\$3		
		bass) and (adder summing summation sum sums summer		
		adding combin\$5)) ((enhanc\$5 with (low adj frequenc\$3		
		bass) and (adder summing summation sum sums summer		
		adding combin\$5)) and 381/\$.ccls.)) and harmonics		
-	78	(((enhanc\$5 with (low adj frequenc\$3 bass) and (adder	USPAT;	2004/06/30 17:36
		summing summation sum sums summer adding combin \$5))	US-PGPUB;	
		and 381/\$.ccls.) ((enhanc\$5 with (low adj frequenc\$3 bass)	EPO; JPO;	
		and (adder summing summation sum sums summer adding	DERWENT	
		combin\$5)) and 381/\$.ccls. and low adj pass)) and		
		harmonics		•
-	23	((first adj low adj pass and second adj low adj pass and (adder	USPAT;	2004/07/02 13:15
	23	summing summation sum sums summer adding combin\$5)	US-PGPUB;	200 1/07/02 13:13
		and 381/\$.ccls.)) and harmonics	EPO; JPO;	
		and 5017 p.ccis.// and Hamiltonics	DERWENT	
	17	///first adi low adi pass and second adi low adi pass and		2004/07/01 10:71
-	17	(((first adj low adj pass and second adj low adj pass and	USPAT;	2004/07/01 10:31
		(adder summing summation sum sums summer adding	US-PGPUB;	
		combin\$5) and 381/\$.ccls.) AND (low adj (frequency)	EPO; JPO;	
		bass))) and harmonics	DERWENT	

-	4	("4220160" "4594731" "4698842" "4821327").PN.	USPAT	2004/06/30 17:38
-	4	5247380.pn. 5027433.pn.	USPAT; US-PGPUB; EPO; JPO;	2004/07/01 10:31
			DERWENT	
-	93	((first adj low adj pass and second adj low adj pass and (adder	USPAT;	2004/07/02 13:19
		summing summation sum sums summer adding combin\$5) and 381/\$.ccls.))	US-PGPUB; EPO; JPO;	
		and 3017 (Accising	DERWENT	
-	22	, , , , , , , , , , , , , , , , , , ,	USPAT;	2004/07/02 15:02
		(adder summing summation sum sums summer adding combin\$5) and 381/\$.ccls.))	US-PGPUB; EPO; JPO;	
		, , , , , , , , , , , , , , , , , , , ,	DERWENT	
-	7	(==== == ==	USPAT	2004/07/02 13:21
-	2		USPAT	2004/07/02 13:23
-	4	("3895321" "4495643" "4701717"	USPAT	2004/07/02 13:24
	3948	"4987378").PN. deriv\$4 with (low with frequency bass)	IISDAT.	2004/07/02 13:26
	3770	delive a mini (low mini frequency pass)	USPAT; US-PGPUB;	2004/07/02 13:20
			EPO; JPO;	
	166	deriv\$4 with (low with frequency bass) with channel	DERWENT USPAT;	2004/07/02 13:26
	100	deriva i widi (low widi frequency bass) widi chaimei	US-PGPUB;	2004/07/02 13:20
			EPO; JPO;	
-	54	deriv\$4 with (low with frequency bass) with channel same	DERWENT USPAT;	2004/07/02 13:26
	.	(low adj pass lowpass)	US-PGPUB;	2004/07/02 13:20
			EPO; JPO;	
	52	deriv\$4 with (low with frequency bass) with channel with	DERWENT USPAT;	2004/07/02 13:29
		(low adj pass lowpass)	US-PGPUB;	
			EPO; JPO; DERWENT	
-	2	("4053711" "5263086").PN.	USPAT	2004/07/02 13:27
-	30	creat\$4 with (low with frequency bass) with channel with	USPAT;	2004/07/02 13:32
		(low adj pass lowpass)	US-PGPUB; EPO; JPO;	
			DERWENT	
-	2	4709014.pn.	USPAT; US-PGPUB;	2004/07/02 13:32
			EPO; JPO;	
		4700014	DERWENT	2004/07/00 17 77
-	2	4790014.pn.	USPAT; US-PGPUB;	2004/07/02 13:33
			EPO; JPO;	
	A	 ("3213180" "3535969" "4182930"	DERWENT USPAT	2004/07/02 13:32
	T	"4698842").PN.	USFAT	2004/07/02 13:32
-	27	pair with low adj pass with left with right	USPAT;	2004/07/02 13:47
			US-PGPUB; EPO; JPO;	
			DERWENT	
-	4	("3094587" "3397286" "3944748" "4230905").PN.	USPAT	2004/07/02 13:35
-	26	4408095.URPN.	USPAT	2004/07/02 13:36
-	6	("3668532" "4182930" "4408095" "4841573"	USPAT	2004/07/02 13:37
-	2	"4982435" "4984273").PN. ("4024344" "4503554").PN.	USPAT	2004/07/02 13:38
-	4	("3195067" "3222455" "3956709"	USPAT	2004/07/02 13:40
		"4221006").PN.		

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-	62	("3229038" "3665105" "3697692" "3745254"	USPAT	2004/07/02 13:43
		"3757047" "3761631" "3772479" "3849600"		
		"3885101" "3925615" "4024344" "4204092"		
		"4209665" "4218583" "4219696" "4237343"		
		"4308423" "4308424" "4309570" "4329544"		
		"4332979" "4355203" "4356349" "4393270"		
		"4394536" "4408095" "4479235" "4489432"		
		"4495637" "4497064" "4503554" "4567607"		
		"4569074" "4589129" "4594610" "4594729"		
		"4594730" "4622691" "4648117" "4696036"		
		"4703502" "4748669" "4856064" "4866774"		
		"5046097" "5105462" "5146507" "5180990"		
		"5208860" "5228085" "5251260" "5255326"		
		"5533129" "5661808").PN.		
-	626	(low adj pass lowpass) with sum with difference	USPAT;	2004/07/02 13:48
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	2118	(low adj pass lowpass) same (sum same difference)	USPAT;	2004/07/02 13:48
		·	US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	451	(low adj pass lowpass) same (sum same difference) same first	USPAT;	2004/07/02 14:01
		same second	US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	51	((low adj pass lowpass) same (sum same difference) same first	USPAT;	2004/07/02 14:01
		same second) and 381/\$.ccls.	US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	1	"4118599".PN.	USPAT	2004/07/02 13:54
-	4	4642812.URPN.	USPAT	2004/07/02 13:54
-	1013	(low adj pass lowpass) with sum and (low adj pass lowpass)	USPAT;	2004/07/02 14:31
		with difference	US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	88	((low adj pass lowpass) with sum and (low adj pass lowpass)	USPAT;	2004/07/02 14:02
		with difference) and 381/\$.ccls.	US-PGPUB;	
		·	EPO; JPO;	
			DERWENT	
-	76	((low adj pass lowpass) and (highpass high adj pass)) with	USPAT;	2004/07/02 14:33
1		sum and ((low adj pass lowpass) and (highpass high adj pass))	US-PGPUB;	
		with difference	EPO; JPO;	
			DERWENT	•
-	61	((low adj pass lowpass) with (highpass high adj pass)) with	USPAT;	2004/07/02 15:00
		sum and ((low adj pass lowpass) with (highpass high adj	US-PGPUB;	
1		pass)) with difference	EPO; JPO;	
			DERWENT	
-	61	(((low adj pass lowpass) with (highpass high adj pass)) with	USPAT;	2004/07/02 15:00
		sum and ((low adj pass lowpass) with (highpass high adj	US-PGPUB;	
		pass)) with difference) and (low adj pass lowpass)	EPO; JPO;	
		, , , , , , , , , , , , , , , , , , , ,	DERWENT	
-	13	(((low adj pass lowpass) with (highpass high adj pass)) with	USPAT;	2004/07/02 15:01
		sum and ((low adj pass lowpass) with (highpass high adj	US-PGPUB;	
		pass)) with difference) and (381/\$.ccls.)	EPO; JPO;	
		, , , , , , , , , , , , , , , , , , , ,	DERWENT	
-	3760	(low adj pass lowpass) with filter with network	USPAT;	2004/07/02 15:01
		, ,	US-PGPUB;	
			EPO; JPO;	
			DERWENT	
	J			1

	229	((low adj pass lowpass) with filter with network) and	USPAT;	2004/07/02 15:02
	227	381/\$.ccls.	US-PGPUB;	2001/07/02 13.02
		3017 \$.ccis.	EPO; JPO;	
			DERWENT	
-	212	(adder summing summation sum sums summer adding	USPAT;	2004/07/02 15:03
		combin\$5) and (((low adj pass lowpass) with filter with	US-PGPUB;	
		network) and 381/\$.ccls.)	EPO; JPO;	
			DERWENT	
-	46	(adder summing summation sum sums summer adding	USPAT;	2004/07/02 15:03
		combin\$5) with ((low adj pass lowpass) with filter with	US-PGPUB;	
	•	network) and (((low adj pass lowpass) with filter with	EPO; JPO;	
		network) and 381/\$.ccls.)	DERWENT	
-	29	(adder summing summation sum sums summer adding	USPAT;	2004/07/02 15:15
		combin\$5) with ((low adj pass lowpass) with filter with	US-PGPUB;	
		network) and (((low adj pass lowpass) with filter with	EPO; JPO;	
		network) and 381/\$.ccls.) not FM	DERWENT	
-	14	("3541266" "4239939" "4394535" "4479235"	USPAT	2004/07/02 15:10
		"4489432" "4496979" "4555795" "4594610"		,
		"4594730" "4625326" "4633495" "4685134"		
		"4706287" "4748669").PN.	LICDAT	0004/07/00 15 15
-	1 70	"4748669".PN.	USPAT	2004/07/02 15:15 2004/07/02 15:15
1-	70	("3170991" "3229038" "3238304" "3246081" "3725586" "3772479" "3860951" "3883692"	USPAT	2004/07/02 13:13
		3944748" "3989897" "4024344" "4027101"	-	
		"4030342" "4063034" "4069394" "4085291"	ĺ	
		"4087629" "4087631" "4097689" "4118599"		
		"4135158" "4139728" "4149031" "4149036"		
		"4152542" "4162457" "4185239" "4188504"		
	~	"4192969" "4204092" "4208546" "4209665"	ŀ	
İ		"4214267" "4218585" "4219696" "4239937"		
		"4239939" "4251688" "4268915" "4303800"		
		"4308423" "4308426" "4309570" "4316058"		
		"4329544" "4334740" "4349698" "4352953"		
		"4355203" "4356349" "4388494" "4393270"		
		"4394536" "4394537" "4446488" "4489432"		
		"4495637" "4503554" "4546389" "4549228"		
		"4551770" "4553176" "4562487" "4567607"		
		"4599611" "4683496").PN.		
-	25	(("3170991" "3229038" "3238304" "3246081"	USPAT;	2004/07/02 15:15
		"3725586" "3772479" "3860951" "3883692"	US-PGPUB;	
		"3911220" "3916104" "3925615" "3943293"	EPO; JPO;	
		"3944748" "3989897" "4024344" "4027101" "4030342" "4063034" "4069394" "4085291"	DERWENT	
		, , , , , , , , , , , , , , , , , , , ,		
		"4152542" "4162457" "4185239" "4188504"		
		"4192969" "4204092" "4208546" "4209665"		
1		"4214267" "4218585" "4219696" "4239937"		
		"4239939" "4251688" "4268915" "4303800"		
		"4308423" "4308426" "4309570" "4316058"		
		"4329544" "4334740" "4349698" "4352953"		
		"4355203" "4356349" "4388494" "4393270"	1	
		"4394536" "4394537" "4446488" "4489432"		
		"4495637" "4503554" "4546389" "4549228"		
		"4551770" "4553176" "4562487" "4567607"		
		"4599611" "4683496").PN.) and sum and difference		

-	10	(("3170991" "3229038" "3238304" "3246081"	USPAT;	2004/07/02 15:15
		"3725586" "3772479" "3860951" "3883692"	US-PGPUB;	
		"3911220" "3916104" "3925615" "3943293"	EPO; JPO;	
		"3944748" "3989897" "4024344" "4027101"	DERWENT	
		"4030342" "4063034" "4069394" "4085291"		
		"4087629" "4087631" "4097689" "4118599"		
		"4135158" "4139728" "4149031" "4149036"		
		"4152542" "4162457" "4185239" "4188504"		
		"4192969" "4204092" "4208546" "4209665"		
		"4239939" "4251688" "4268915" "4303800"		
		"4308423" "4308426" "4309570" "4316058"		
		"4329544" "4334740" "4349698" "4352953"		
		"4355203" "4356349" "4388494" "4393270"		
		"4495637" "4503554" "4546389" "4549228"		
-		"4551770" "4553176" "4562487" "4567607"		
		"4599611" "4683496").PN.) and sum and difference		
		and (low adj pass lowpass)		
-	19	(("3170991" "3229038" "3238304" "3246081"	USPAT;	2004/07/02 15:22
		``"3725586" "3772479" "3860951" "3883692"	US-PGPUB;	
		"3911220" "3916104" "3925615" "3943293"	EPO; JPO;	
		"3944748" "3989897" "4024344" "4027101"	DERWENT	
ŀ		"4030342" "4063034" "4069394" "4085291"		
		"4087629" "4087631" "4097689" "4118599"		
		"4135158" "4139728" "4149031" "4149036"		
		"4152542" "4162457" "4185239" "4188504"		
		"4192969" "4204092" "4208546" "4209665"		
		"4214267" "4218585" "4219696" "4239937"		
		"4239939" "4251688" "4268915" "4303800"		
		"4308423" "4308426" "4309570" "4316058"		
		"4329544" "4334740" "4349698" "4352953"		
		"4355203" "4356349" "4388494" "4393270"		
		"4394536" "4394537" "4446488" "4489432"		
		"4495637" "4503554" "4546389" "4549228"		
		"4551770" "4553176" "4562487" "4567607"		
		"4599611" "4683496").PN.) and sum and difference		
		and (low)		
	6193	sum same difference same (low)	USPAT;	2004/07/02 15:22
1	0173	Sum same difference same (low)	US-PGPUB;	2004/07/02 13:22
			EPO; JPO;	
			DERWENT	
_	1681	sum same difference same (low) and (lot same right)		2004/07/02 15:23
	1081	sum same difference same (low) and (left same right)	USPAT;	2004/07/02 15:23
			US-PGPUB;	
			EPO; JPO;	
	010	anno anno differenza anno floris en differenza della seria	DERWENT	2004/07/00 15 07
-	210	sum same difference same (low) and (left same right) and	USPAT;	2004/07/02 15:23
		381/\$.ccls.	US-PGPUB;	
1	1		EPO; JPO;	
	/	1100	DERWENT	0004/07/00 17 57
-	625	sum same difference same (low) and (left same right) and	USPAT;	2004/07/02 15:23
		(audio sound music)	US-PGPUB;	
	1		EPO; JPO;	
			DERWENT	
-	30	sum same difference same (low) and (left same right) and	USPAT;	2004/07/02 15:24
		(woofer sub adj woofer subwoofer)	US-PGPUB;	
1			EPO; JPO;	
	1		DERWENT	

- 30 ("D351388" "D351839" "0538263" "0709984" USP "1786279" "2580916" "2643727" "2869667" "2993557" "3477540" "3816672" "3848092" "4107479" "4134324" "4182931" "4196790" "4218583" "4348549" "4580654" "4594729"	AT 2004/07/02 15:36
"2993557" "3477540" "3816672" "3848092" "4107479" "4134324" "4182931" "4196790"	
"4107479" "4134324" "4182931" "4196790"	ł
"4218583" "4348549" "4580654" "4594729"	
"4620317" "4630298" "4638505" "4691362"	
"4759066" "4819269" "4924963" "5333200"	
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- 4 ("D351388" "D351839" "0538263" "0709984" USP	AT 2004/07/02 16:16
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"5412732" "5475764").PN. and sum and difference	AT 2004/07/09 1F 70
- 12 ("4908858" "4933786" "5210796" "5216718" USP	AT 2004/07/02 15:39
"5333201" "5412731" "5524053" "5572591"	
"5592558" "5638452" "5657391"	
"5680464").PN.	
- 2 ("4680796" "5216718").PN. USP	
- 8 5333201.URPN. USP	F .
- 1656 L-R R-L USP	
- 1305 (L-R R-L) and (low lowpass) USP	AT 2004/07/02 16:17
- 478 (L-R R-L) and (low lowpass) and 381/\$.ccls. USP	AT 2004/07/02 16:17
- 38 (L-R R-L) and (low lowpass) and 381/\$.ccls. and (subwoofer USP	AT 2004/07/02 16:18
woofer)	
- 326679 pole USP	AT; 2004/07/06 10:59
	PGPUB;
	; JPO;
	WENT
- 39181 pole and filter USP	1
	PGPUB;
	; JPO;
	WENT
	l l
	, ,
	PGPUB;
	; JPO;
	WENT
- 14866 pole same filter USP	•
	PGPUB;
	; JPO;
	WENT
- 481 (pole same filter) and 381/\$.ccls. USP	AT; 2004/07/06 11:00
	PGPUB;
EPO EPO	; JPO;
	WENT
- 417 "16" and 381/\$.ccls. and ("16" sixteen) USP	
	PGPUB;
	; JPO;
	WENT
- 417 (pole same filter) and 381/\$.ccls. and ("16" sixteen) USP	
	PGPUB; 2004/07/08 11:01
	; JPO;
	WENT
- 24 (pole same filter) and 381/\$.ccls. and (sixteen)	
	PGPUB;
	; JPO;
I I I	WENT

-	253	(pole same filter) and 381/\$.ccls. and (factor)	USPAT;	2004/07/06 11:01
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	1
-	17	((pole same filter) and 381/\$.ccls. and (sixteen)) and ((pole	USPAT;	2004/07/06 11:02
		same filter) and 381/\$.ccls. and (factor))	US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	280	allpass	USPAT;	2004/07/06 11:02
1			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	2096032	allpass pass	USPAT;	2004/07/06 11:02
			US-PGPUB;	
			EPO; JPO;	
			DERWENT	
-	17	(((pole same filter) and 381/\$.ccls. and (sixteen)) and	USPAT;	2004/07/06 11:02
		((pole same filter) and 381/\$.ccls. and (factor))) and	US-PGPUB;	
		(allpass pass)	EPO; JPO;	
			DERWENT	

different downmixing circuits. One example is described in U.S. patent application Ser. No. _____. Combining circuitry 23 and 28 may have a plurality of cascaded stages for combining the signals input at the input terminals.

[0023] Referring to FIG. 2b, there is shown another embodiment of the invention, for combining three or more signals, which may represent three or more channels. The signals are input at input terminals 12-1 . . . 12-n. Phase shifting circuitry 18 shifts the phase of each signal, so that the relative phase of the signal input at an input terminal is shifted relative to that of the other signals. The relative phase shifts can be nonuniform or uniform according to a pattern, for example, by shifting each channel by i360/n degrees (where i=0 to n-1, or i=1 to n). Care should be taken so that if a relative shift of greater than 120 degrees and less than 240 degrees occurs between two channels, it should occur only between channels that are unlikely to have correlated and in-phase content. Typically, diagonal channel pairs (left surround/right front, and right surround/left front) are unlikely to have correlated and in-phase content. One way of implementing the phase shifting circuitry of FIG. 2b is to apply individual phase shifting elements 19-1 . . . 19-n, such as all-pass filters as will be discussed below.

[0024] Referring now to FIGS. 3a-3d, there are shown four block diagrams of four audio signal processing circuits implementing the combining circuit of FIG. 1 and showing an additional feature of the invention. In the implementations of FIGS. 3a and 3c, combining circuit 10 has additionally one or more low-pass filters 42 and may have equalizers 40 coupling the output terminals 20', 44, 46, 52, 54 with the other portions of the circuitry. Two low-pass filters 42 may be placed so that they couple input terminals 12 and 14 with phase shifting circuitry 18, respectively (as shown in FIGS. 3a and 3b), or one low pass filter may be placed so that it couples output of summer 16 with output terminal 20 (as shown in FIGS. 3c and 3d). Low-pass filters 42 operate so that the audio signals at output terminal 20 contain only spectral components in the bass frequency range. The placement and purpose of the equalizer 40 will be discussed below. In the implementations of FIGS. 3a and 3d, the combining circuit 10 is implemented in an audio system having two high frequency channel output terminals 44 and 46 and a bass output terminal 20'. The high frequency output terminals 44 and 46 are coupled to input terminals 12 and 14 by high pass filters 48 and 50. The implementations of FIGS. 3a and 3d are typical of a satellite system, in which the low frequency sounds from all channels are radiated from a nonlocalizable module, and in which the high frequency sounds are radiated from a plurality of upper frequency radiators.

[0025] In the implementations of FIGS. 3b and 3c, the combining circuit 10 is implemented in an audio system having two output terminals 52 and 54 to which full range speakers are coupled. In FIGS. 3b and 3c, the inputs of summers 56 and 58 are coupled to input terminals 12 and 14 by high-pass filters 48 and 50, respectively. The inputs of summers 56 and 58 are also coupled to output terminal 20, and the output of summers 56 and 58 are coupled to full range output terminals 52 and 54. The result is that audio signals at terminals 52 and 54 include the bass spectral components, phase shifted and combined, and the high frequency portions of the channels input at input terminals

12 and 14. The implementations of FIGS. 3b and 3c are typical of audio systems employing a plurality of fill range speakers.

[0026] To improve frequency response, equalizers 40 may be employed to adjust the frequency response. In the implementations of FIGS. 3a and 3d, there may be equalizers 40 coupling input terminals 12 and 14 with output terminals 44 and 46 respectively, and an equalizer 40 coupling summer 16 and bass output terminal 20. In the implementations of FIGS. 3b and 3c, there may be equalizers 40 coupling input terminals 12 and 14 with summers 56 and 58 respectively, and an equalizer 40 coupling summer 16 and combining circuit output terminal 20. Alternatively, in the implementations of FIGS. 3b and 3c, the three equalizers may be replaced by two equalizers coupling summers 56 and 58 with output terminals 52 and 54, respectively.

[0027] In the systems of FIGS. 3a-3d, the signal summing or combining at summers 16 may be additive or differential. Additive and differential summation may give different results, especially if the signals contain "surround" information encoded using some popular techniques. Generally, differential summation works well in all circumstances, while additive summation may work less well.

[0028] Referring now to FIGS. 4a and 4b, there is shown a schematic diagram of the signal processing portion of a test circuit for illustrating some of the features of the invention. The circuit of FIGS. 4a and 4b implements a system having the topology of FIG. 3c, with a single equalizer 40 coupling summer 16 and low pass filter 42. In FIGS. 4a and 4b, the reference numerals refer to portions of the circuit which implement the blocks of FIG. 3c.

[0029] Referring now to FIG. 5a, there is shown a plot of phase shift versus frequency for the circuit of FIGS. 4a and 4b. Curve 76 represents the amount by which the audio signal input at input terminal 12 is shifted by phase shifting circuitry 18. Curve 78 represents the amount by which the audio signal input at input terminal 14 is shifted by phase shifting circuitry 18. Curve 80 represents the phase shift difference between curves 76 and 78, or in other words the relative phase shift imparted by the circuit of FIGS. 4a and 4b.

[0030] In a two-channel system, or in a system in which channels have been downmixed as in the embodiment of FIG. 2a, the phase shift difference is preferably 60 to 120 degrees over the frequency range of interest. A phase shift difference of 120 degrees or greater may cause attenuation if the channels were initially in phase. A phase shift difference of 60 degrees or less may not alleviate the signal cancellation problem if the channels were initially out of phase. Generally it is desirable to have signals in the frequency range of interest to be relatively phase shifted by between 60 and 120 degrees, and to have most in the frequency range relatively shifted by close to 90 degrees.

[0031] The plot of FIG. 5a illustrates the principle that some implementations of the invention, such as the circuit of FIGS. 4a and 4b which employ single stage all-pass filters, do not create the same phase shift difference over the entire frequency band of interest. According to this plot, the circuit of FIGS. 4a and 4b creates a phase shift difference of between 60 and 120 degrees in the frequency range of about 20 Hz to about 500 Hz, with a maximum phase shift of about

110 degrees at about 90 Hz, and causes a phase shift difference of different amounts, down to nearly zero degrees at other frequencies. This property of a circuit shifting the frequency by zero degrees at some frequencies can be used to advantage in some situations, such as the embodiment of FIG. 8a l below.

[0032] A 90-degree phase shift has an especially desirable property, namely producing a similar boost in the output, regardless of the phase and correlation relationship of the input signals. Generally, the most common phase and correlation relationships between two channels are correlated and in phase, correlated and in phase opposition (that is, out of phase by 180 degrees), and uncorrelated (in which case phase is irrelevant). If two equal amplitude correlated and in-phase channels are combined, the combined output is boosted by 6 dB. If two equal amplitude correlated and 180 degrees out-of-phase signals are combined, they cancel. If two equal amplitude signals are uncorrelated, the combined output is boosted by 3 dB.

[0033] With regard to the invention, if the phase shift difference applied by the circuitry is 90 degrees, the resultant combined signal consists of two components with a phase difference of 90 degrees, regardless of whether the two input signals were in phase or out of phase before being combined. When two signals with a phase difference of 90 degrees (regardless of whether they are correlated or uncorrelated) are combined, the boost is about 3 dB. The boost of the circuit is therefore a uniform 3 dB, regardless of whether the two input signals were in phase or out of phase before combining.

[0034] FIG. 5b shows that the circuit of FIGS. 4a and 4b exhibits a substantially consistent 0 dB magnitude response over the frequency range shown.

[0035] Referring now to FIG. 6, there is shown a block diagram of an audio signal processing circuit implementing the topology of FIG. 3d, and further including combining circuits for downmixing channels, as shown in FIG. 2a. The audio system has six input channels (left surround (Ls), right surround (Rs), low frequency effects (LFE), and center (C). First downmixing combiner 23 has as inputs the Rs channel signal, the L channel signal, and a signal that is the sum of the scaled inputs of the C channel signal and the LFE channel signal. Second downmixing combiner 28 has as inputs the Ls channel signal, the R channel signal, and a signal that is the sum of the scaled inputs of the C channel signal and the LFE channel signal. Phase shifting circuitry 18 includes two cascaded digital all-pass filters 18-1 and 18-2 applied to the signal at input 12 and two cascaded digital all-pass filters 18-3 and 18-4 applied to the signal at input 14. Each of the six input channels has an output channel output terminal, 52-1 through 52-6.

[0036] The implementation of FIG. 6 is particularly suited to a digital signal processing 5.1 channel system for decoding matrix encoded signals. With matrix encoded signals, the surround channel signal is shifted in phase with respect to the left and right channel signals by -90 degrees. This signal is then added with the left channel signal and subtracted with the right channel signal such that it appears in the left and right channel signal shifted in phase by a relative 180 degrees. Because of the phase relationships of the channels in a matrix encoded system, the decoded, quadrature shifted, multi-channel signals are differentially combined at summer 16.

[0037] Referring now to FIG. 7a, there is shown a plot of phase shift vs. frequency for the embodiment of FIG. 6, with filter 18-1 having a pole at -8.376 Hz. and a zero at 8.376 Hz, filter 18-2 having a pole at -134 Hz and a zero at 134 Hz, filter 18-3 having a pole at -37.44 Hz and a zero at 37.44 Hz, and filter 18-4 having a pole at -599.17 Hz and a zero at 599.17 Hz. In the implementation of FIG. 6, which has multi-stage all-pass filters, the desirable phase shift of -90 degrees is closely realized over a wide range of frequencies. The frequency spacing in each path (filters 18-1 and 18-2, 8.376 Hz to 134 Hz, filters 18-3 and 18-4, 37.44 Hz to 599.17 Hz) are each a factor of about 16. Generally, an in-path spacing of 16 gives the highest degree of accuracy of in-path phase shift, while an in-path spacing of greater than 16 applies the in-path phase shift over a wider frequency range. The left to right side spacing (8.376 Hz to 37.44 Hz and 134 Hz to 599.17 Hz) are each a factor of 4.5. Generally, a left to right side spacing of 4 gives high accuracy of left to right difference in phase shift, and factors of greater than 4 furnishes the phase shift difference over a wider range of frequencies.

[0038] In addition to single stage or multistage all-pass filters, the phase shift circuitry can also be implemented by circuitry implementing Hilbert transform functions. In commercial implementations, all-pass filters may be preferable due to the simplicity of the circuitry. Single and multi-stage all-pass filters and Hilbert transform functions can be implemented using analog circuits, digital circuits, or microprocessors running digital signal processing software.

[0039] FIG. 7b, shows the magnitude response for the combining portion of the circuit of FIG. 6. The magnitude response is a substantially consistent +3 dB over the frequency range of interest, with a rolloff over the low-pass filtered portion of the frequency range.

[0040] Referring now to FIG. 8a, the properties of all-pass filters can be used to simplify the circuits of FIGS. 3b and 3c, in which the output signals are full range signals. If the phase shifter 18 is implemented as two all-pass filters (18-1 and 18-2), chosen with parameters such that the phase shift operates only on a lower portion of the frequency spectrum, the high frequency paths, the result of FIGS. 3b and 3c, can be established with the circuit of FIGS. 8a. With all-pass filter 18-1 having a pole at -378 Hz and a zero at +378 Hz and all-pass filter 18-2 having a pole at -54.7 Hz and a zero at +54.7 Hz, phase shifter 18 shifts the phase by 80 degrees at 63 Hz and by 100 degrees at 315 Hz.

[0041] The audio system of FIG. 8a is preferably used with a pair of full range speakers. The sound waves radiated in response to the audio signals in the two channels are summed acoustically, after transduction, rather than electronically before transduction as in the embodiment of FIG. 6. In a situation in which radiated sound waves are summed acoustically, the power response is a function of loudspeaker spacing, speaker directivity and the wavelength of the radiated sound, but not the phase response of the audio system. So while equalizers 40 may be desirable for other reasons, in a system such as FIG. 8a, the equalizers may be omitted for a spatially averaged target response.

[0042] FIG. 8b shows the frequency response of the circuit of FIG. 8a.

[0043] Referring now to FIG. 9, there is shown another implementation of the invention. In the implementation of